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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,188	08/06/2001	Ben J. Sloan	FSI0022/US/3	9116

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EXAMINER

FORD, JOHN K

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 06/13/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/923,188

Applicant(s)

Sloan + Reed

Examiner

FORD

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 2-24-03 (RLE)
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 27, 29, 30, 32, 33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27, 29, 30, 32 and 33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6
- 18) ☐ Interview Summary (PTO-413) Paper No(s): \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27,29,30,32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebinuma (5,577,552) in view of JP 62-74112 or Moen or JP 4-371751 or JP 62-237248 or JP 61-27444.

See Figure 2 of Ebinuma and the explanation thereof. Note heaters 15,16,17 each independently control temperature to stations 6,7, and 8. Note in col. 4, lines 10-30, the cooler is at 19.9 degrees C and the heaters heat the fluid to 20 degrees C.

To have controlled each of heaters 16 and 17 in a separate feedback loop such as shown in reference to heater 15 (controller 23, temperature sensor 22) in Figure 2 of Ebinuma would have been obvious to more precisely control temperature at stations 7 and 8, particularly if those stations, like station 6, had variable and irregular heat loads.

Applicant in Paper No. 4 has traversed the rejections based on Ebinuma and the other references based on an argument that it would not have been obvious to duplicate the feedback control devices (23, shown in Figure 2) for stations 7 and 8 because in col. 1, line 65-col. 2, line 2 it states that the "present device" is "simple (in) structure and (of) a high precision". Apparently applicant meant to quote col. 1, lines 57-64. In col. 1, line 57-64, it expressly states that prior art to Ebinuma used plural

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temperature regulators for plural zones. Notwithstanding Ebinuma's desire to produce a less expensive alternative, he does clearly teach that at least the same goal of precision control can be accomplished with plural feedback temperature regulators, albeit at increased cost. And why would one do that? The answer lies in Figure 2 and the description thereof found in col. 4, line 54-col. 5, line 6. One of the stations there (station 3) has a variable, irregular heat load and requires a feed back controller to maintain a constant temperature.

It is submitted that one of ordinary skill in the art, possessed of knowledge clearly disclosed in Ebinuma and known in the art, would have had ample motivation to have replicated the feed back controller shown at station 3 for any other station that also had a variable and irregular heat load for the purpose of improving temperature control of that station. The two other stations of Ebinuma do not apparently have variable and irregular heat loads and, hence, do not need an expensive feed back controller. Moreover, as Ebinuma discusses in col. 5, lines 1-6, if the liquid flow rate changes a feed back device is required because a constant heat generator type system (as shown at all three stations in Figure 1) would need to be readjusted every time the flow rate changes.

It is respectfully submitted that the trade off between increased expenses for a feed back type controller and improved control attained by feed back control is one, which is implicitly taught and disclosed in the Erbium reference. The choice of more

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control, with more complexity by using separate feedback/control devices for each station is fairly taught as a choice left to the practitioner.

Applicant has no quarrel in Paper No. 4 with respect to claims 28 and 31 and the prior art applied thereto, except for the reasons stated above. Now, having incorporated the subject matter of claims 28 and 31 into the independent claims (27 and 29), applicants have apparently changed their minds in Paper No. 7 about the applicability of these secondary references. Such a piece-meal approach to responding to rejections does not comply with 37 CFR 1.111 (b) which requires all arguments in favor of patentability to be presented in response to a rejection or rejections. See MPEP 714.02

JP '112 teaches a bypass 12 (Figures 1 and 6) to improve the temperature control of a heater 11 responsive to a plurality of temperatures T1, T2 (Figure 6) and T1 T2, T3 (Figure 1).

To have used a bypass and controller such as taught by JP '112 (in Figures 1 and 6) around the in-line heaters (15, 16 and 17) of Ebinuma to improve temperature control would have been obvious.

Moen teaches a temperature-controlled valve 118 (col. 5, lines 38-41) in a bypass line 24 around in-line heaters 40 and 42, for the purpose of preventing temperature "overshoot".

To have added a temperature responsive bypass such as taught by Moen around each of in-line heaters 15, 16 and 17 of Ebinuma to avoid any "overshoot" problems would have been obvious to one of ordinary skill.

JP '751 teaches a bypass 8 with a valve 7 and various sensor around heater 1 for the purpose of diminishing the variation of hot water temperature, as does JP'248 at branch "A" and "B" controlled by valves 7 and 8.

To have provided such a bypass valves and sensors as taught by JP '751 or JP'248 around each of the in-line heaters 15,16,17 of Ebinuma to reduce variations in hot fluid temperature would have been obvious to one of ordinary skill.

Finally, JP'444 in Figures 2 and 4 teaches a bypass (having valve 16 in Figure 2 and valve 24 in Figure 4) around an in-line heater 17 to maintain fluid temperatures at desired levels. To have added such a bypass, valves and restrictors around each of inline heaters 15, 16 and 17 of Ebinuma to properly maintain fluid temperatures would have been obvious to one of ordinary skill.

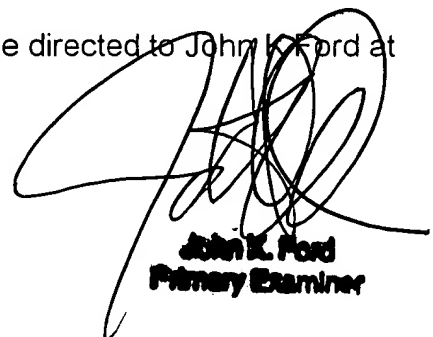
In paper No. 7, page 6, applicants now argue that JP'112, Moen, JP'751 and JP '444 are directed to overshoot prevention whereas applicants' concern is "bypass to rapidly affect the temperature"... "because of a large temperature differential". The

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argument is unpersuasive. An "overshoot" as the term is understood in the automatic control art means a large temperature deviation, past the set point temperature. Thus, if one is attempting to heat a fluid, to bring the temperature of the fluid to the set point temperature (i.e. to minimize the temperature differential, to bring it to zero, as all feedback control systems seek to do) and one overheats the fluid thereby creating an "overshoot", the temperature differential will be large (i.e. above a predetermined value of zero, where zero is the desired temperature differential between the measured and set-point temperatures in a properly functioning feedback control system). See USPN 3593253, col. 2, lines 36-44, which reference forms no part of this rejection except to disclose what those of ordinary skill in the art know.

Regarding claims 32 and 33, whenever one opens any bypass connected in parallel with a heater, one necessarily increases the flow rate because the fluid now has two tubes to go through rather than one. The analogy is one of a child using two soda straws in parallel to suck soda from a glass faster.

Any inquiry concerning this communication should be directed to John K. Ford at telephone number 703-308-2636.



**John K. Ford**  
Primary Examiner